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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/559,398

12/05/2005

Kimihiro Mabuchi

19461-003US1

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EXAMINER

FORTUNA, ANA M

ART UNIT

PAPER NUMBER

1797

MAIL DATE

DELIVERY MODE

11/29/2007

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

<p align="center">Office Action Summary</p>	<p>Application No.</p> <p>10/559,398</p>	<p>Applicant(s)</p> <p>MABUCHI ET AL.</p>	
	<p>Examiner</p> <p>Ana M. Fortuna</p>	<p>Art Unit</p> <p>1797</p>	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. §.133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 27 February 2006.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-8 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-8 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date <u>2/27/06, 12/05/2005</u> | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Claim Rejections - 35 USC § 112

1. Claim 4 recites the limitation "non-uniformity in thickness" in 2. There is insufficient antecedent basis for this limitation in the claim.

Claim Rejections - 35 USC § 102

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claims 1-8 are rejected under 35 U.S.C. 102(b) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over Kwata et al (US5,340,480). Patent '480 teaches a membrane made from a hydrophobic polymer containing a hydrophilic polymer, e.g. Polysulfone/PVP (abstract, the membrane is a hydrophilic polysulfone, which has ultrafiltration performance, e.g. meets the limitations of burst pressure of 0.5 MPa (abstract, and claims). The percent of hydrophilic polymer in the surface (skin) and water permeability are disclosed within the claimed levels (column 16, lines 3-11, and examples. The skin can be in the inner side or the outer side (column 3, lines 45-68, column 7, lines 1-6, and entire disclosure). The retention of PVP in the membrane

is inherent of the process, based on the selection of a high molecular weight PVP, that is retained and concentrated in the skin layer of the membrane (see column 8, second paragraph). The water permeability is substantially disclosed (see Example 3, lines 38-45). Properties of claims 2-4 are found in the patent (column 15-16, example 2, and column 15, lines 45-68). Regarding to the thickness of claim 5, (see column 19, lines 35-41). Limitations of claims 6-7 are disclosed in this patent (column 5, lines 4-30, and column 6, last paragraph through column 7, line 3). The crosslinking, of claim 8 is not disclosed in the patent, and not necessary because the PVP is retained based on the high molecular weight. One skilled in this art using a lower molecular weight PVP would have been motivated to crosslink by conventional methods, e.g. irradiation, to avoid leaking the water soluble polymer.

5. Claims 1-8 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kwata et al (US5,340,480) in view of EP 1110563 A2 (hereinafter '563). Patent '480 is silent regarding to specific elution of hydrophilic polymers and crosslinking of the membrane to avoid the elution. Reference '563 teaches reducing the leakage of PVP (hydrophilic polymer) elution, in a membrane made from a mixture of polysulfone (hydrophobic polymer) to a level of less than 10 ppm by crosslinking the membrane by Gamma ray (25 KGy), electron beam, heat or chemical treatment (abstracts, paragraphs [0016], [0029]-[0031], examples, and claim 1). Patent '480 select a high molecular weight PVP to entrap the PVP in the membrane matrix and avoid elution, but does not crosslink, as require in claim 8, and the specific reduction of less than 10 ppm is not disclosed. The skilled artisan at the time this invention was made would have been

motivated one of the methods suggested by reference 'produce the same degree of hydrophilic polymer elution by crosslinking, in particular for membranes made from PS/PVP combinations. the membrane in reference '563 is made from substantially the same composition, and from a high molecular weight hydrophilic polymer, and further have the claimed ultrafiltration range, is a asymmetric membrane with an inner skin (paragraphs [0012]-[0013]-[0015], and example 1). It would have been further obvious to one skilled in this art at the time this invention was made to improve the retention of hydrophilic polymer in the membrane, even when a high molecular weight hydrophilic polymer is used in the membrane, and retained in the skin, as in the case of patent '480, as suggested in reference '563.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Ana M. Fortuna whose telephone number is (571) 272-1141. The examiner can normally be reached on 9:30-6:00 M-F.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David R. Sample can be reached on (571) 272-1376. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Ana M Fortuna/
Primary Examiner, A. U. 1797

AF
November 26, 2006